

The second vertebræ of the same species support cervical ribs articulated to their bodies ; but in all other respects they resemble that of the Crocodile.

EXPLANATION OF PLATE XIII.

Fig. 1. Anterior view of the atlas of *Plesiosaurus* from the Lias : n. p. neurapophysis ; c. centrum.

Fig. 2. Axis of the same species : n. s. neural spine ; n. p. neurapophysis ; c. centrum ; p. l. pleurapophysis.

Figs. 1 a & 2 a. Lateral views of the same vertebræ :—the same letters indicate the same parts as in figs. 1 & 2.

Fig. 3 a. Lateral view of the anchylosed atlas and axis of *Plesiosaurus* from the Kimmeridge Clay.

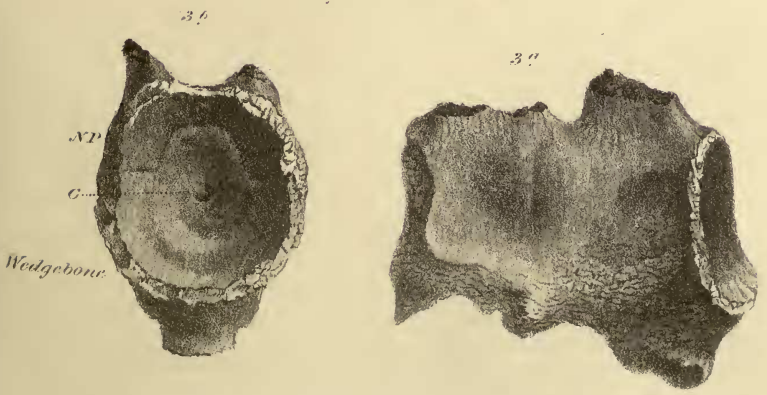
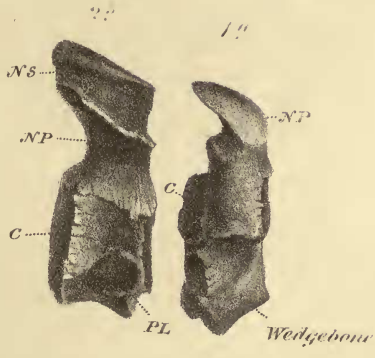
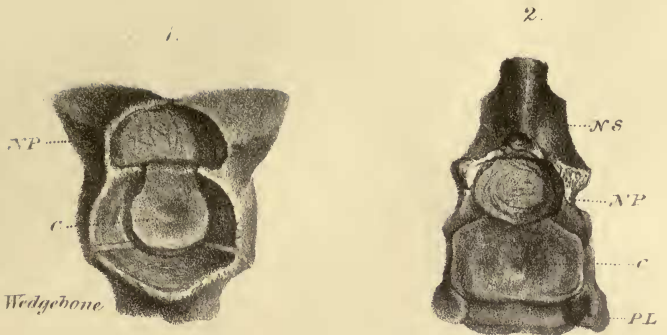
Fig. 3 b. The articular cup of the same specimen : n. p. neurapophysis ; c. centrum.

BIBLIOGRAPHICAL NOTICES.

Handbook of Zoology. By J. VAN DER HOEVEN, Professor of Zoology in the University of Leyden. Translated from the second Dutch Edition, by the Rev. WILLIAM CLARK, M.D., F.R.S. &c. 2 vols. 8vo. London, Longmans, 1856–1858.

CONSIDERING the high reputation enjoyed by the ‘*Handbook of Zoology*’ of Professor Van der Hoeven, not only on the Continent, but also amongst many English naturalists, it would be a work of supererogation were we to enter here upon any detailed criticism of its merits. A short notice of the classification adopted by the learned Professor of Leyden will, however, probably be acceptable to many of our readers ; and we shall therefore venture to give a general outline of it before proceeding to the more legitimate object of the present notice—the consideration of the mode in which Dr. Clark has executed his translation of this important work.

Professor Van der Hoeven commences his ‘*Handbook*’ with a general introduction to the study of zoology, containing a brief account of the distinctions between inorganic and organic bodies, and of the two great kingdoms into which the latter are divided,—an abstract of the tissues of animals, which he compares with the proximate elements of the chemist,—a very brief description of the structure and functions of the principal organs and of the development of animals,—and concluding with a short treatise on the art of classifying. In this he gives the characters of Cuvier’s four great divisions of the Animal Kingdom, to which he adds a fifth, the Protozoa, in a foot-note ; but in his own classification he discards this distribution “except as a guiding idea,” and divides the whole series of animals into seventeen great independent classes. We cannot help considering it a thing to be regretted that this “guiding idea” should not have been rendered more prominent and palpable to the reader ; by taking the opposite course, Professor Van der Hoeven has lost the





opportunity of indicating the morphological relations of his classes, which may be traced with gradually increasing clearness in the three higher divisions, whilst the only advantage gained by it is that he gets over the difficulty of determining whether the Echinodermata should be placed in one or other of two sections.

Professor Van der Hoeven excludes the Sponges altogether from the Animal Kingdom,—a course which has been adopted by some other continental zoologists, with but little justice, as it appears to us: his classification accordingly commences with the Infusoria, which may be regarded (with the above exception) as equivalent to the Protozoa, including both the true Infusoria and the Rhizopoda; and, singularly enough, considering that the Sponges are excluded, the *Volvocina* are still placed among the former, as are also some other forms (*Vibrionidæ*) whose vegetable nature is generally regarded as fully established.

The Radiata of modern authors form the three following classes, the *Polypi*, *Acalephæ*, and *Echinodermata*. Amongst the Polyps, Professor Van der Hoeven still includes, not only the Hydroida, but also the Bryozoa, although he admits that the latter would almost be better placed with the Mollusca. Of course, as the Hydroid Polyps are grouped in the same class with the true Polyps, the class of Hydrozoa of modern authors (the *Hydras-medusæ* of Leuckart) is not recognized by our author; his class of Acalephæ includes exactly the same elements as that of Cuvier,—a circumstance which is to be regretted, as the curious relations of the Hydrozoa, and the remarkable phænomena of their so-called alternation of generations can only be satisfactorily understood by regarding the Hydroid Polyps and Acalephæ as forming a single great group. The *Sipunculacea* are included amongst the Echinodermata.

With the fifth class, that of the *Entozoa*, divided into the two orders *Sterelmintha* and *Cœlelmintha*, we commence the great series of the Annulosa, including the classes *Rotatoria*, *Annulata*, or Ringed worms, of which the *Turbellaria* constitute the first order, *Insecta* (with the *Myriapoda*), *Arachnoidea*, and *Crustacea*.

The Mollusca, with our author, form three great classes, the *Tunicata*, the *Conchifera*, and the *Mollusca*. Considering the vast differences of organization existing between the Brachiopoda and Lamellibranchiata and the Gasteropoda and Cephalopoda, we cannot regard this arrangement as at all satisfactory on any grounds, and should have greatly preferred seeing the Mollusca divided, in accordance with ordinary usage, into at least five classes (besides the Bryozoa).

The Vertebrate Animals, which of themselves occupy the whole of the second volume, are divided into four classes, the author not regarding the distinctions manifested between the Batrachia and the true Reptiles as sufficient to warrant their separation into two classes. The classification adopted for the Fishes is to a certain extent modified in accordance with the views of Professor Müller,—that is to say, the *Leptocardii* and *Cyclostomi* are regarded as forming a distinct section from the *Chondropterygii* (*Selachii* of Müller), and the